

SUPPORT FOR THE AMENDMENTS

The present amendment amends claims 10-13, and adds new claims 14-19.

Claims 10-13 have been amended to place these claims in a better condition for allowance.

Support for these amendments is provided by the originally filed claims and specification.

Support for newly added claims 14-19 is found in original claims 1-4, 5 and 10.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 1-19 are currently pending in the present application. Claims 10-13 have been amended, and new claims 14-19 have been added, by the present amendment.

The rejection of claims 1-13 under 35 U.S.C. § 103(a) as being obvious over Ikeda (EP 1333018) is respectfully traversed.

Claims 1-4 are respectively directed to the asymmetric monoanthracene derivatives of formulae (1)-(4). In contrast, Ikeda describes a tremendously large genus of anthracene derivatives represented by formulae (1)-(5) (See e.g., pages 3-6). Unlike the claimed monoanthracene derivatives of formulae (1)-(4), which are *asymmetrical*, each of the forty anthracene derivatives exemplified in Ikeda are *symmetrical* (See e.g., pages 9-18). Therefore, Ikeda fails to provide specific examples of asymmetric anthracene derivatives according to formulae (1)-(4) of the present invention.

Applicants respectfully submit that while the broadly defined anthracene derivatives of Ikeda encompass the claimed asymmetric monoanthracene derivatives, Ikeda fails to provide sufficient motivation and guidance to direct a skilled artisan to particularly select the claimed asymmetric monoanthracene derivatives from either the *tremendously large genus* of anthracene derivatives, or the *preferred symmetric* anthracene derivatives, described and exemplified in Ikeda.

The mere possibility that the anthracene derivatives described and exemplified in Ikeda could be modified to arrive at the claimed asymmetric monoanthracene derivatives of formulae (1)-(4) is an insufficient ground for arriving at a supportable conclusion of unpatentability.

A *prima facie* case of obviousness requires that the prior art provide a skilled artisan with sufficient motivation and guidance to make the proposed molecular modifications needed to arrive at the claimed compounds. See e.g., MPEP § 2144.08(II)(A)(4), *Takeda v. Alphapharm*, 83 USPQ2d 1169, 1174 (Fed. Cir. 2007) and *In re Lalu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984).

Ikeda fails to disclose or suggest modifying the anthracene derivatives described and exemplified therein to arrive at the claimed asymmetric monoanthracene derivatives of formulae (1)-(4). As a result, a skilled artisan would not have arrived at the claimed asymmetric monoanthracene derivatives of formulae (1)-(4), based on the disclosure of Ikeda, absent impermissible hindsight reconstruction.

Assuming *arguendo* that sufficient motivation and guidance is considered to have been provided by Ikeda to arrive the claimed asymmetric monoanthracene derivatives of formulae (1)-(4), which is clearly not the case, such a case of obviousness is rebutted by a showing of superior properties and secondary considerations.

As discussed in the present specification, traditional organic electroluminescent (EL) devices comprising conventional anthracene derivatives suffer from inferior properties with respect to luminous efficiency and lifetime (See e.g., page 3, lines 16 and 23). Accordingly, there has been a long-felt need to provide an organic EL device that exhibits superior properties with respect to improved luminous efficiency and lifetime. Based on the limited disclosure of Ikeda, other skilled artisans have failed to discover a solution to this long-felt need.

As shown by the comparative experimental data presented in Table 1 of the present specification, which is reproduced below, Applicants have discovered that an organic electroluminescent device comprising an asymmetric monoanthracene derivative according to formulae (1)-(4) of the present invention exhibits superior properties with respect to remarkably improved luminous efficiency and half life (See e.g., page 4, lines 19-25, page 5, lines 1-15, page 8, lines 8-11, page 104, Table 1 and last paragraph, page 105, lines 1-5).

In contrast, Ikeda fails to disclose or suggest that an organic electroluminescent device comprising an asymmetrical anthracene derivative exhibits superior properties with respect to remarkably improved luminous efficiency and half life.

Table 1

	Compound in Luminescent Layer	Luminous Efficiency	Half Life	Depositing Temperature
		(cd/A)	(hour)	(°C)
Example 20	AN-8/D1	11.1	6,050	300
Example 21	AN-213/D1	10.9	4,000	261
Example 22	AN-346/D1	10.7	3,300	254
Example 23	AN-8/D2	10.5	3,800	300
Example 24	AN-45/D1	11.2	6,200	298
Example 25	AN-72/D1	10.9	4,000	262
Example 26	AN-74/D1	11.0	5800	305
Comparative Example 1	an-1/D1	8.7	900	349
Comparative Example 2	an-2/D1	8.7	800	331
Comparative Example 3	an-3/D1	8.9	500	310

Specifically, the organic EL devices of Examples 20-26, which comprise an asymmetric monoanthracene derivative according to formulae (1)-(4) of the present invention, exhibit superior properties with respect to remarkably improved luminous efficiency and lifetime, as compared to the inferior properties exhibited by the organic EL devices of Comparative Examples 1-3, which comprise conventional symmetric monoanthracene derivatives, such as the symmetric monoanthracene derivative of compound (3) as described and exemplified in Ikeda (See e.g., page 9, line 35).

This evidence clearly demonstrates that the asymmetric monoanthracene derivatives according to formulae (1)-(4) of the present invention exhibit superior properties with respect to remarkably improved luminous efficiency and lifetime, as compared to the inferior properties exhibited by conventional symmetric monoanthracene derivatives, such those described and exemplified in Ikeda.

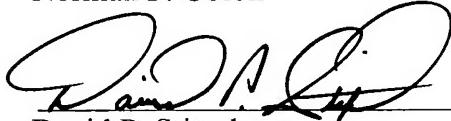
Withdrawal of this ground of rejection is respectfully requested.

Application No. 10/572,586
Attorney Docket No. 286945US0PCT
Response to Official Action dated October 6, 2008

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

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